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Department of Agriculture, Ceylon. Leaflet.
Dublin Quarterly Journal of Science.
Entomological Society of Nova Scotia, Proceedings.
Genetics. Princeton.
Institut Colonial de Marseille, Bulletin.
Junta de Ciencias Naturals, Barcelona. Series Biologico-Oceanografica; Series Botanica; Series Zoologica.
Magasin Encyclopédique. 122 vols. 1795-1816.
Nova Scotia Department of Agriculture, Bulletin.
Osborn Botanical Laboratory, Yale University, Contributions.
Midland Naturalist (London). 16 vols. 1878-1893.
Rivista Italiana di Speleologia. Bologna.
Royal Society of Western Australia, Journal and Proceedings.
Revue Zoologique Russe. Moscow.
Scientific Society of San Antonio, Bulletin.
Secretaria de Fomento, etc. Mexico, Boletin Oficial.
Sutton and Sons, Bulletin. Reading, England.
University of Michigan Museum of Zoology, Miscellaneous Publications.
Westwood Astrophysical Observatory, Occasional Scientific Papers.

Sixty-five works in seventy-one volumes have been loaned. 1146 works in 1678 volumes have been used by the attachees in connection with their studies.

Five hundred and seventy-three volumes have been bound.

Mr. Furman S. Wilde, Assistant in the Library, has been serving in the National Army since November 3, 1917.

Miss H. N. Wardle has kindly rendered efficient aid as caretaker of the Library during the Assistant Librarian's absence.

EDWARD J. NOLAN, *Librarian*.

REPORT OF THE CURATORS.

The Curators, at the close of the present year, are able to report the collections and buildings in their care, in excellent condition. The museum staff has been constantly employed in the study, arrangement, and display of the collections in the various departments as described in detail below.

Most of this work has consisted in carrying out the arrangement of material in the new study and exhibition cases, as outlined in last year's report, but much new material has also been cared for.

At the session of the State Legislature, which closed early in the past summer, an appropriation of \$15,000 was made for the needs of the Academy. From this fund it was possible to paint the entire outside wood and iron work of the building, which was much in need of attention. Plans have been prepared for necessary alterations in the heating plant, which will be carried out at once. The consideration of other improvements made possible by this appropria-

tion has been temporarily postponed owing to the illness of the President and Executive Curator, Dr. Samuel G. Dixon.

The attendance of visitors, both the general public and the classes of school children from the city and nearby towns, has been large, and the educational importance of the museum is constantly increasing.

In field work, Mr. Clarence B. Moore has continued his explorations among the Indian mounds of the Southern States. Mr. J. A. G. Rehn, through the liberality of Mr. Morgan Hebard, was enabled to join him on an entomological trip of several weeks in central Florida and northern Georgia, the Academy sharing in the material collected. Dr. Stone received leave of absence for several weeks during the spring and summer, and collected considerable botanical and entomological material for the Academy in central South Carolina and southern New Jersey, and local field work was carried on by various members of the staff. While the Academy sent out no expeditions during the year, several valuable collections of mollusks, birds, fishes and insects were obtained by purchase.

Details of work in the several departments follow:

MAMMALS.

Many osteological preparations have been made by the taxidermist from material received from the Zoological Society of Philadelphia, which are ready to be placed in the study series, and a number of specimens from the same source, as well as two sea lions from the Philadelphia Aquarium, have been prepared as skins. Material has been loaned to Dr. J. A. Allen.

BIRDS.

By removing a number of duplicates from the general exhibition collection of birds, space was secured for the display of a large part of the groups of North American birds recently received from Mr. Geo. B. Benners, an exhibit which has attracted much attention. During the spring the services of Miss Emma P. Merrick were secured as an aid in the ornithological department, and with her help, Dr. Stone was enabled to make a great advance in the arrangement of the study series of birds.

The entire series of hummingbirds were examined and many of the specimens made over, while all were identified and relabeled. The Jewel collection and the Rhoads Guatemala collections were

also identified and relabeled, and together with the Carriker collection of Colombian birds, were distributed through the study series, and 1,173 specimens were catalogued.

The entire collection of birds eggs has been carefully cleansed and all the North American specimens placed in uniform glass-covered boxes secured for the purpose. In these they are absolutely protected and present a very handsome appearance.

Several important accessions have been received, notably the collection of bird skins of the late Samuel Wright, presented by Mrs. Wright; the Charles J. Pennock collection of eggs and skins, presented by Mrs. Pennock; and collections of Colombian birds and of Hummingbirds obtained by purchase. A number of visiting ornithologists have made use of the collections during the year and specimens have been loaned to J. E. Law, and W. E. Clyde Todd.

REPTILES AND BATRACHIANS.

Mr. Henry W. Fowler has had charge of this department and has looked after the welfare of the specimens along with those of the ichthyological department. 200 specimens have been catalogued, representing part of the material received during the year. A number of West Indian reptiles have been loaned to Dr. Thomas Barbour, of the Museum of Comparative Zoology, who is studying them critically and redetermining them while a series of African reptiles has been borrowed by the American Museum of Natural History. Mr. G. K. Noble visited the Museum in the summer and made use of the collections while Mr. E. R. Dunn has studied certain of the Salamanders and in conjunction with Mr. Fowler, has prepared a paper upon them.

During the summer Dr. Stone and the Taxidermist, Mr. McCadden, made experiments in preparing casts of local reptiles for exhibition and material was obtained for several groups of turtles and toads. Specimens were loaned to Dr. Thos. Barbour, G. K. Noble, Mary C. Dickerson and Karl P. Schmidt.

FISHES.

Mr. Fowler reports large accessions to the ichthyological collections, of which 1,134 have been catalogued. He has identified a collection of Philippine fishes for the Philadelphia Commercial Museum, in return for which the Academy has received a valuable series of specimens, while in the same way he has secured from the Museum of Comparative Zoology, a series of cyprinoid fishes from

India. The Academy is again especially indebted to Messrs. E. S. and W. I. Mattern, who have presented collections of local fishes from various parts of Pennsylvania and New Jersey, aggregating 5,000 specimens. On March 8, the second meeting of the American Society of Ichthyologists and Herpetologists was held at the Academy, which brought together specialists in these fields from various parts of the country and proved in every way most successful.

Three papers dealing with the collections were published by Mr. Fowler during the year. Specimens were loaned to Dr. C. H. Eigenmann.

MOLLUSKS.

Dr. Henry A. Pilsbry, Special Curator of Mollusks, states that specimens have been received from 82 persons and institutions since the last report. Among other valuable gifts were large accessions to the collection of Hawaiian Mollusca, received from Mr. D. Thaanum, of Hilo, Hawaii, and from Prof. and Mrs. W. A. Bryan, of Honolulu, who spent several months at the Academy studying the collections. Also the important Rocky Mountain and California material from Prof. Junius Henderson and Mr. Jas. H. Ferriss.

New cases installed last year have permitted the expansion and rearrangement of the whole study series of shells, which is now in excellent order.

Dr. Pilsbry has completed the first volume of the "Monograph of the Pupillidæ," begun last year, the final number being now in press. He has also published three papers on the anatomy of West American snails, and in collaboration with Mr. Ferriss, a study of the mollusks of the Black Range, New Mexico. Also papers on Hawaiian marine shells.

Mr. Vanatta has been occupied with labeling and arranging accessions to the collection and in determining specimens for correspondents. Miss Ziegler has made good progress in the long task of cataloguing the collection of shells.

The collection has been extensively used by visiting naturalists. Specimens have been loaned to Dr. Paul Bartsch, Prof. A. E. Verrill and E. P. Chase.

INSECTS.

In the department of Entomology, Dr. Henry Skinner reports that during the year, two thousand three hundred and eighty-six insects have been received, and the greater part of them has been relaxed, mounted and placed in the cabinets.

The usual care has been devoted to the preservation of the collections and a considerable amount of rearrangement in the new metal cases carried into effect. In the Coleoptera the family Cerambycidae has been rearranged in its entirety. The Silphidae, Scydmaenidae and Pselaphidae have also been rearranged.

In the Lepidoptera the genus *Argynnis* has been rearranged, and many additional specimens added. Some work has also been done on the exotic species. Mr. R. C. Williams, Jr., arranged the Lycænidæ according to his studies of the genitalia of the family.

In the Diptera, Mr. E. T. Cresson, Jr., has continued his systematic studies of the family Ephydridæ, and has also determined and rearranged the Sciomyzidæ and Sarcophagidæ.

In the Orthoptera, Mr. J. A. G. Rehn has continued the rearrangement of the specimens in the new type of large glass-covered boxes, and the work has been nearly completed. Numerous small collections have been mounted, labeled, and stored. A report on extensive Brazilian collections has been completed, as well as a study of the genus *Mermiria* both of which will be published as soon as the illustrations are completed. Numerous specimens have been determined for correspondents.

Mr. Morgan Hebard has spent most of his time at the Museum during the year and in the course of his studies on his various collections, has presented much valuable material to the Academy. His expedition to Florida and Georgia, already referred to, was productive of collections of much importance. Many visiting entomologists have studied the collections of insects during the year and specimens have been loaned to Jas. S. Hine, G. C. Crampton and W. T. Davis.

VERTEBRATE FOSSILS.

The collections of vertebrate fossils have been removed to the new series of cases provided for them last year. The main collections are arranged in trays in the storage closets under the cases, while a representative series has been selected from them for exhibition. The mammals and birds have been arranged by Mr. Rehn, the reptiles and fishes by Mr. Fowler. Mr. Rehn has also compiled extensive data from which comprehensive labels will be prepared, describing the exhibition for the benefit of the public.

INVERTEBRATE FOSSILS.

Accessions to this department have not been large during the past year. Dr. Pilsbry and the late Prof. Amos P. Brown have published

a paper describing a small, but valuable lot of fossils from Colombia, given by Mr. Lloyd B. Smith. A preliminary report on Santo Domingo fossils by Dr. Pilsbry and Mr. C. W. Johnson, has also been published.

HERBARIUM.

Mr. Stewardson Brown, who has been able to again take active control of the herbarium, spending every other day at the Museum, reports much progress in the work in this department.

During the year Miss Ada Allen has mounted 3,388 sheets of plants, which have been catalogued and distributed in the general herbarium by Mr. Brown, while Mr. S. S. Van Pelt, who has continued his voluntary services during the year, has mounted 2,400 sheets for the local herbarium.

Mr. Brown has studied and identified the collections made in California by Dr. Witmer Stone, and in New Mexico by Dr. Henry A. Pilsbry during 1915, and has also prepared for distribution to the New York Botanical Garden, St. Louis Botanical Garden, Gray Herbarium and U. S. National Herbarium, 1,723 duplicate specimens, in return for valuable accessions received from these institutions.

Mr. Van Pelt has rearranged nearly the entire Porter collection, placing the specimens in systematic order so that they are readily accessible, while he and Mr. Bayard Long have critically studied certain families and separated out the local material, much of which has been mounted. Mr. Long has continued his voluntary care of the local herbarium.

Dr. J. C. Arthur and Mr. C. L. Shear spent a week in the study of the deSchweinitz cryptogamic herbarium and rearranged much of it, giving the Academy the benefit of their expert knowledge of these obscure plants.

Specimens have been loaned to Prof. M. L. Fernald, W. W. Eggleston, Francis J. Pennell, C. V. Piper, Mrs. Agnes Chase and Prof. A. S. Hitchcock.

MINERALS AND ROCKS.

Mr. Samuel G. Gordon, a student on the Jessup Fund, has continued to render excellent service in caring for the collections of minerals and rocks. During the year he has thoroughly cleansed and relabeled the collection of minerals deposited by the Franklin Institute and arranged them in the new cases in the mineral hall, part of them being placed on exhibition and the others in the study

collection. A number of small collections aggregating 6,000 specimens which have been stored in the basement were critically examined, specimens of value placed in the general series and the others packed away for disposal as duplicates.

On several field trips to northern New Jersey, Virginia, etc., Mr. Gordon secured a number of valuable rocks and minerals for the collection.

The arrangement of the William S. Vaux collection has been completed, and Mr. George M. Greene was employed to prepare new labels for the entire collection. This work was completed early in the year. Further labeling of groups, etc., has been done by Mr. Gordon.

ARCHÆOLOGY.

Mr. Moore's field expedition during the first three months of 1916, made a re-investigation of aboriginal sites along the lower Mississippi River and in northwest Florida and Southern Alabama. The autumn expedition was devoted to the region of northwest Florida and southwest Georgia. The results of both expeditions being largely pottery, regarded as duplicate, proved the thoroughness of his earlier investigations. The collections of archæological material in the museum have been partly rearranged during the year, by Miss H. N. Wardle, who has continued to care for the department and many specimens have been identified for visitors and correspondents.

A number of local collectors have consulted the collections during the year.

WITMER STONE, *Chairman.*

SAMUEL G. DIXON,

HENRY A. PILSBRY,

HENRY TUCKER.

REPORT OF THE CURATOR OF THE WILLIAM S. VAUX COLLECTION.

Completion of re-labeling, during the early months of the year, has brought the William S. Vaux Collection into satisfactory condition.

Accessions during the year include ten specimens of meteorites and fifteen of minerals, acquired by purchase, and the following gifts:

Thaumasite, Paterson, N. J., and Cacoenite, Hellertown, Pa., presented by Samuel G. Gordon; Stevensite, Paterson, N. J., and

Pectolite, Great Notch, N. J., presented by John Holzman; Babingtonite, Paterson, N. J., presented by R. A. Mercer; Beraunite, Hellertown, Pa., presented by Fred. Oldach; and Rutile, Rowlands-ville, Philadelphia, presented by Harry A. Warford.

Samuel G. Gordon has continued to give valuable assistance in caring for the collection.

Respectfully submitted,

F. J. KEELEY, *Curator Wm. S. Vaux Collection.*

REPORTS OF THE SECTIONS.

THE BIOLOGICAL AND MICROSCOPICAL SECTION.—The Biological and Microscopical Section held eight meetings during the year. The attendance and membership have increased.

The Conservator reports the gift of a Hartnack microscope and more than eight hundred slides of Invertebrata from the estate of the late Dr. Benjamin Sharp. Some work has been done in the arrangement of the general collection of slides.

Numerous communications have been made by members including Messrs. T. C. Palmer, Hugo Bilgram, W. H. Van Sickel, Dr. Thomas S. Stewart, F. J. Keeley, J. G. Rothermel, S. L. Schumo, B. F. Ray, and C. S. Boyer.

The following officers were elected for the year 1918:

<i>Director</i>	J. Cheston Morris, M.D.
<i>Vice-Director</i>	T. Chalkley Palmer.
<i>Treasurer</i>	Thomas S. Stewart, M.D.
<i>Conservator</i>	F. J. Keeley.
<i>Recorder and Cor. Sec.</i>	Charles S. Boyer.

CHARLES S. BOYER, *Recorder.*

ENTOMOLOGICAL SECTION.—Six stated meetings were held during the year, with an average attendance of ten persons. Interesting communications were made by: Morgan Hebard, Philip P. Calvert, Henry Skinner, James A. G. Rehn, Philip Laurent, Roswell C. Williams, Jr., Ernest Baylis and Henry W. Fowler were elected contributors, and Charles W. Frost was elected a member. The death of W. D. Kearfott, a contributor, was announced. The purchase was made of a Bausch & Lomb Combined Balopticon, suitable for the projection of lantern slides and opaque objects.